

REMARKS/ARGUMENTS

This amendment is in response to the Official Action of February 4, 2003. A petition for a one month extension of the period for responding to this Official Action, to and including June 4, 2003, is enclosed herewith.

With respect to the "information disclosure statement" allegedly filed with the application on November 13, 2001, Applicants did not file an information disclosure statement on this date. Applicants filed a copy of International Application No. PCT/GB00/01924 as published from which this application is a continuation. The published International Application included a copy of the International Search Report and a copy of the International Preliminary Examination Report. All of the references identified in these reports are listed in Applicants' subsequently filed Information Disclosure Statements filed on December 17, 2002 and March 28, 2002. These information disclosure statements fully comply with 37 CFR 1.98 (a) (1).

The Examiner has objected to the drawings on the basis that they do not show every feature of the invention specified in the claims, namely, "the connection of the strings of LEDs (claim 19), the strings of LEDs and prisms positioned orthogonally (claim 20), [and] the potting compound acting as a spacer (claim 27). Applicants have amended Figures 2 and 3 of the drawings in the amended sheet 3 submitted herewith to show these elements.

The Examiner has objected to claim 6 under 37 CFR 1.75 (c) as being in improper dependent form for failing to further limit the subject matter of a previous claim. Applicants have canceled this claim. The Examiner also has objected to claims 8, 9 and 11 because of various informalities in the language used in these claims. Applicants have amended these claims to overcome these objections.

The Examiner has rejected claims 3, 20 and 23 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as their invention. The Applicants have amended claims 3 and 20 to correct the indefinite language identified by the Examiner, and have canceled claim 23.

The Examiner has rejected claims 1, 2, 4-6, 23, 24 and 31 under 35 U.S.C. § 102 (b) as being anticipated by U.S. Patent No. 4,521,835 ("*Meggs*"). *Meggs* is concerned with an internal LED lighting system for activation in emergency situations to provide occupants of an aircraft, for example, with a visible indication of exit locations. The housing for the lighting comprises an elongate, flexible transparent member having an upper portion of variable thickness to optimize refraction and reflection of the internally generated light. The aim of the *Meggs* system is to distribute light in an optimally efficient manner, that is, without wasting any of the power and light generated. *Meggs* does not describe or suggest a lighting assembly for mounting on the exterior of the aircraft to provide an external in flight warning light, the LED housing is not adapted for external mounting and the housing is not provided with a transparent window protecting an opening in the housing. Additionally, the optical unit (if it can be described as such) is intended to maximize the illumination perceivable by the occupants of an aircraft in emergency situations, which is completely different from propagating fractions of the collected light in accordance with a predetermined angular distribution that meets the intensity and distribution requirements for external warning lights as defined by aviation regulations. Accordingly, there is no anticipation of claim 1 as amended, nor

can there be any anticipation of the claims dependent on claim 1, nor of claim 31 as amended.

The Examiner has rejected claims 1, 6-8, 10, 12 and 16 under 35 U.S.C. § 102 (b) as being anticipated by U.S. Patent No. 4,733,335 ("*Serizawa*"). *Serizawa* is directed towards an LED lamp for motor vehicles, especially of the type for use as a high-mounted rear stop lamp. The object of the *Serizawa* lamp is to ensure that the front lens of the lamp is uniformly illuminated, and this is achieved by means of a lens system in which the emergent light passes through an outer diffusion lens. *Serizawa* does not describe or suggest a lighting assembly for mounting on the exterior of the aircraft to provide an external in flight warning light, nor is the LED housing adapted for such mounting. Moreover, the part of the optical unit that propagates the light forms part of the housing and is not therefore protected behind a transparent window as is required by amended claim 1. Indeed, being specifically directed towards producing uniform illumination, the emergent light would not meet the intensity and distribution requirements set out by aviation lighting regulations. Again, there is no anticipation by *Serizawa* of claim 1 as amended, nor can there be any anticipation of the claims dependent on claim 1.

The Examiner has rejected claims 1, 6, 7, 9, 11, 25-27 and 47 under 35 U.S.C. § 102 (b) as being anticipated by U.S. Patent No. 5,528,474 ("*Roney*"). *Roney*, like *Serizawa*, is directed towards LED array vehicular lamps, this time specifically for trucks and trailers. *Roney* addresses the problem of overheating that arises from the need to tightly space the LEDs in the array in order to provide sufficient visibility. The solution to the problem is found in the use of a thermally conductive material in which the circuit board for the LED array is embedded. While the LED array is disposed

inside a housing having a transparent window, the window itself includes optical features in the form of an elongate lens rib having a constant curvature in cross-section that provides constant optics. There is no separate optical unit disposed behind the transparent window, nor are the optical characteristics of the window adapted to meet the intensity and distribution requirements set out under aviation lighting regulations. Indeed the structure of the lamp as illustrated would be most unsuitable for external fixing to an aircraft to provide an in-flight warning light. There being no anticipation of claim 1 by *Roney*, it follows that no claim dependent on claim 1 is anticipated. Since the lamp unit of claim 47 as amended is required to be suitable for external aircraft use and to meet aviation regulations with regard to light intensity and distribution, there also is no anticipation of this claim.

The Examiner has further relied upon the above references in combination with other references to demonstrate the alleged obviousness under 35 U.S.C. § 103 of certain of the dependent claims. However, in view of the amendments to claim 1 which are discussed above, combined with the fact that none of the *Meggs*, *Serizawa* or *Roney* references is concerned with external aviation lighting, a person skilled in the art would have no reason to combine *Meggs*, *Serizawa* or *Roney* with these other references. Moreover, even if *Meggs*, *Serizawa* or *Roney* were combined with these other references in the manner suggested by the Examiner, these combinations would not produce the lighting assembly recited in these dependent claims. Each of the rejections of the dependent claims for obviousness is addressed below.

The Examiner has rejected claim 3 under 35 U.S.C. § 103 (a) as being unpatentable over *Meggs* in view of U.S. Patent No. 5,388,035 ("*Bodem*"). The Examiner admits that *Meggs* does

not disclose the subject matter of claim 3. *Bodem*, like the references discussed above, is directed towards marker lamps used for trucks and other automotive vehicles, not for external in flight warning lights. The object of *Bodem* is to produce an LED lamp in which the emergent beams from the LEDs are combined to produce a composite beam having a reasonably constant intensity across the beam width dimension. However, as neither *Meggs* nor *Bodem* lie in the field of external aviation lighting, a skilled person in the art looking to produce an external aircraft warning light, such as an anti-collision light, would not be motivated to combine these references, nor would he or she arrive at the claimed invention even if he or she did combine the references. The *Bodem* lamp is not adapted for external installation on an aircraft, nor would it be suitable for the same, not least because the optical unit is exposed in use rather than shielded inside a housing behind a transparent window. Also, while *Bodem* utilizes an optical structure for achieving light intensity and beam divergence requirements set out by the Department of Transportation, such requirements do not equate to requirements of the aviation regulating bodies, such as the FAA.

The Examiner has rejected claim 13 under 35 U.S.C. § 103 (a) as being unpatentable over *Roney* in view of DE 4128995 A1 ("*Decker*"). The Examiner admits that *Roney* does not disclose the subject matter of claim 13. *Decker* also is concerned with motor vehicle lamps ("*kraftfahrzeuge*" means motor vehicle) that utilize LEDs as the light source. The object of *Decker* is to produce uniform illumination of rectangular surfaces by utilizing optical units of various types, one type having an aspherical exit face, the optical units serving to "concentrate" the light emitted from the LEDs so that the light emerges as a parallel beam. Once again, there is no reason why a person

skilled in the art and intent upon creating an external aircraft warning light that satisfies aviation lighting regulations would look to either *Decker* or *Roney* for a solution and, even if he or she did, the combination does not teach or suggest the lighting assembly of claim 13.

The Examiner has rejected claim 14 under 35 U.S.C. § 103 (a) as being unpatentable over *Serizawa* in view of UK Patent Application GB 2,295,274 A ("*Bernard*"). The Examiner admits that *Serizawa* does not disclose the subject matter of claim 14. *Bernard* is yet another reference concerned with motor vehicle lamps, particularly lamps performing as rear stop lamps the same as in *Serizawa*. *Bernard* discloses an optical arrangement for the purpose of producing an intense collimated beam or a dispersed beam of any selected angle. The optical arrangement involves the use of a total internal reflecting lens for intensifying the beam and a prismatic lens or holographic diffuser for dispersing the intensified beam. Neither *Bernard* nor *Serizawa* discloses an assembly that would be suitable for an external in flight warning light for an aircraft, and as both references are concerned with improvements to rear stop lamps, a skilled person in the art would not be motivated to consider either of them and then combine them. Even if he or she did combine these references, the combination would not result in the invention of claim 14.

The Examiner has rejected claim 15 under 35 U.S.C. § 103 (a) as being unpatentable over *Roney* in view of *Decker* as applied to claim 13, and further in view of *Bernard*. The Examiner admits that *Roney* does not disclose the subject matter of claim 14. Neither *Decker* nor *Bernard* discloses LED lighting for external in flight warning lights, both being directed towards lighting for motor vehicles. *Roney* also lies in the field of vehicular (trucks and trailers) lighting. None of

these references describes an assembly in which both an LED array and an optical unit are housed behind a transparent window for protection, nor are any of the embodiments adapted for external mounting on an aircraft. Indeed, no combination of these three references would result in the aircraft lighting assembly of claim 15, and so even if a person skilled in the art did consider them, the references do not individually or in combination lead to the claimed invention.

The Examiner has rejected claims 17 and 18 under 35 U.S.C. § 103 (a) as being unpatentable over *Serizawa* in view of U.S. Patent Nos. 6,296,376 ("*Kondo*"). The Examiner admits that *Serizawa* does not disclose the subject matter of claim 17. *Kondo* is another reference disclosing an LED lamp largely for motor vehicle purposes, especially rear lights. The main object of the *Kondo* device is to provide area lighting in which a combination of first and second optical means results in the diameter of the light emitting surface being enlarged and the luminance of the outer lens surface of the second optical means being uniform. Both *Serizawa* and *Kondo* are therefore concerned with producing uniform illumination, and both with respect to motor vehicles. A skilled person looking to produce an external aircraft in flight warning light in which the emitted light meets the intensity and distribution requirements would not find anything in these references, alone or in combination, that would lead to the invention of claims 17 and 18.

The Examiner has rejected claim 19 under 35 U.S.C. § 103 (a) as being unpatentable over *Serizawa* in view of *Kondo* as applied to claim 18 and further in view of U.S. Patent No. 6,203,108 ("*Fleischmann*"). The Examiner admits that *Serizawa* does not disclose the subject matter of claim 19. *Fleischmann* is concerned with internal cabin lighting for aircraft involving strings of LEDs. Contrary to the Examiner's assertion,

Fleischmann appears to suggest connecting the LEDs in series or in parallel, not in series and in parallel (see lines 5-6 of the abstract, and col. 1, lines 33-40). However, even if this were not the case, combining the teachings of *Serizawa* with *Fleischmann* would not lead to the aircraft lighting assembly of claim 19. Similarly, *Kondo* does not disclose a plurality of LEDs comprising strings connected in parallel with other strings, and even if there were such a disclosure, the combination of *Kondo* with *Serizawa* would not direct a skilled person to the invention of claim 19 for the reasons stated above with respect to claims 17 and 18.

The Examiner rejected claim 21 under 35 U.S.C. § 103 (a) as being unpatentable over *Meggs* in view of U.S. Patent No. 6,273,591 ("*Albou*"). The Examiner admits that *Meggs* does not disclose the subject matter of claim 21. *Albou* discloses a motor vehicle indicator light comprising an optical unit interposed between a light source and a cover glass. The light source is a filament lamp, and the purpose of the optical unit is to convey the illusion when lit that the light source comprises a plurality of individual sources, such as LEDs, all having similar intensities and remaining visible within a wide range of viewing angles. When not illuminated, the presence of the optical unit conveys the appearance to an observer of a multi-faceted precious stone. While *Albou* discloses an optical unit having first and second optical structures on opposing faces, it is concerned with motor vehicle lighting as is the *Meggs* reference.

The Examiner has rejected claim 22 under 35 U.S.C. § 103 (a) as being unpatentable over *Meggs* in view of *Bodem* as applied to claim 3, and further in view of U.S. Patent Nos. 6,386,743 ("*Futami*"). The Examiner admits that *Meggs* does not disclose the subject matter of claim 22. *Futami* is yet another

reference concerned with lights for motor vehicles or as traffic lights. The light assembly involves the use of both a reflector and a lens that includes a plurality of aspherical lenses. The *Futami* reference is directed towards producing a vehicle light with superior transparency of a front lens and creating a 3-dimensional appearance when viewed, also producing a horizontally wide and highly uniform light distribution pattern. *Futami* is not specifically concerned with using LEDs as the light source. Also, as discussed above, there are a number of features of the present invention as set out in amended claim 1 that are not found in *Meggs*. These features also are not found in *Futami*. Accordingly, the fact that *Futami* describes the use of aspherical lenses to improve light output efficiency would not lead a skilled person to the present invention by combining its teaching with those of *Meggs*.

The Examiner rejected claims 28 and 29 under 35 U.S.C. § 103 (a) as being unpatentable over *Meggs*. The Examiner admits that *Meggs* does not specifically disclose the subject matter of these claims. For the reasons discussed above with respect to the patentability of amended claim 1 over *Meggs*, claims 28 and 29 also are patentable over this reference.

The Examiner rejected claim 30 under 35 U.S.C. § 103 (a) as being unpatentable over *Meggs* in view of U.S. Patent No. 6,461,029 ("*Gronemeier*"). The Examiner admits that *Meggs* does not disclose the subject matter of claim 30. With respect to *Gronemeier*, this reference is not prior art against the present application. *Gronemeier* was filed in the United States on December 18, 2000. The present application is a continuation of International Application No. PCT/GB00/01924 filed on May 19, 2000 and which designated the United States. Under 35 U.S.C. § 365 (c), therefore, the effective U.S. filing date for this application is May 19, 2000.

Applicants appreciate the Examiner's acknowledgement that the subject matter of claim 20 is allowable.


In view of the foregoing, Applicants respectfully request the timely issuance of a Notice of Allowance in this application. If, however, for any reason the Examiner does not believe that such action can be taken at this time, she is respectfully requested to telephone Applicants' attorney at (908) 654-5000 in order to overcome any additional objections that she may have.

If there are any additional charges in connection with this amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Dated: June 2, 2003

Respectfully submitted,

By



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Application No.: 10/047,521

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CONT

Proposed Replacement Sheet 3

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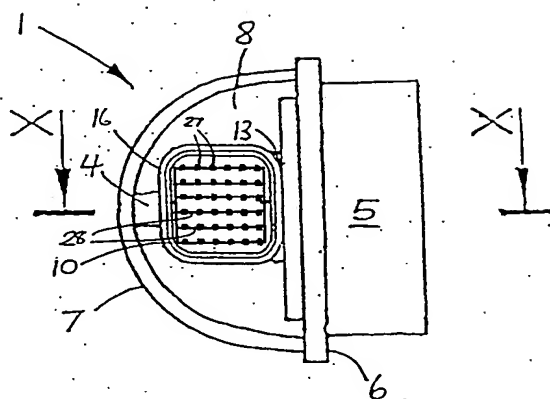


Fig. 2

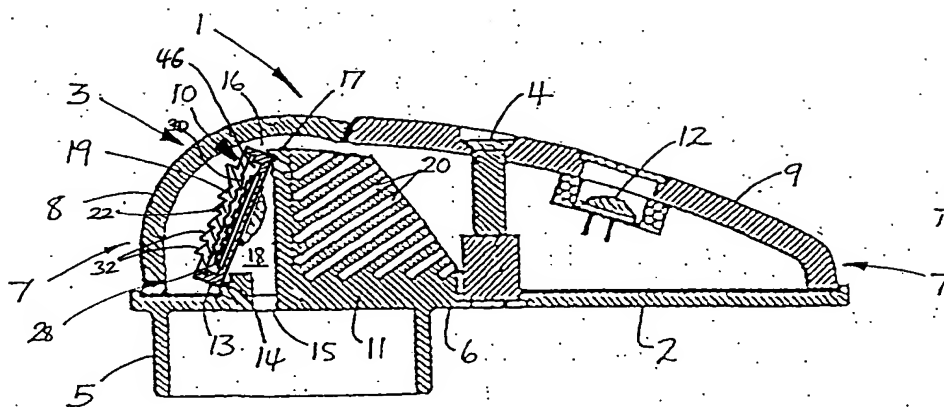


Fig. 3

SECTION X-X

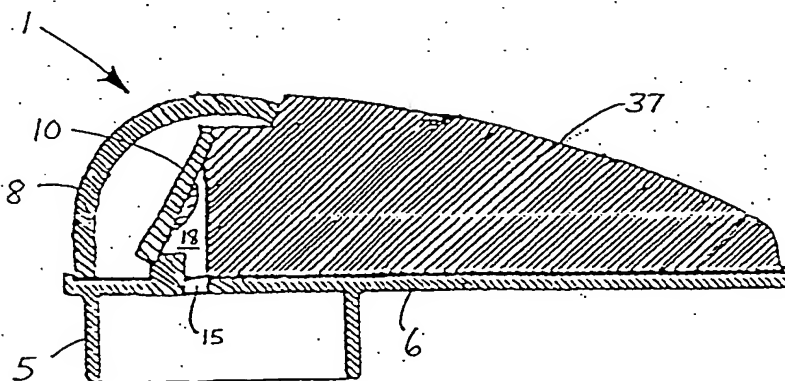


Fig. 6